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The dynamic version of the Bayley-III

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The dynamic version of the Bayley-III

Test results and the opinion of practitioners

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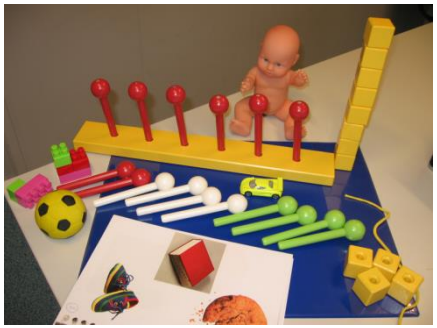
Overview

- Introduction
  - Context: Bayley-III Special Needs Addition (SNA) Project
  - Background of dynamic testing
  - Dynamic procedure of the Bayley-III: short explanation
  - Research questions
- Method
- (Preliminary) Results
- Discussion
  - Conclusion
  - Planned research
- References & Acknowledgements

Context: Bayley-III SNA Project

- Bayley Scales of Infant and Toddler Development, Third Edition
- Developmental assessment (cognition, language, motor development)
- Age: 1 – 42 months
- Adapted versions to increase suitability with children with cognitive / functional disabilities:
  - Low motor / vision
  - Low verbal
  - **Dynamic version**



Low motor / vision materials

- Review article with an overview of available developmental assessment instruments (Visser et. al, in press)
- Funding by ZonMw, in cooperation with Pearson Assessment

Background of dynamic testing

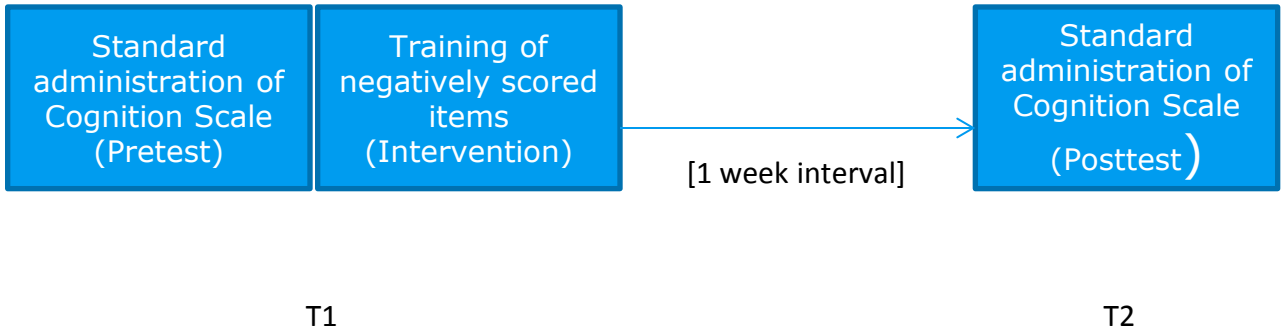
- Limited useful information for intervention plan
- Low predictive validity
- Dynamic instruments for infants and toddlers: not standardized (Kahn, 2000)

- Dynamic assessment: 'an interactive procedure that systematically and objectively measures the degree of change that occurs in response to cues, strategies, feedback, or task conditions that are introduced during testing' (Embretson, 2004)
- Measure of learning potential and sensitivity to instruction

Dynamic procedure of the Bayley-III

- Cognition scale
- From 12 months developmental age
- Gain information about learning potential and sensitivity to instruction

- Training of negatively scored items:



Dynamic procedure of the Bayley-III (2)

- Training according to fixed (standardized) steps:
  - Repeat procedure
  - Verbal explanation
  - Demonstration
  - Hand-over-hand

- Fragment

Research questions

1. Do children differ in their learning potential and amount of help needed?

2. Is their a difference between children with and without developmental problems in learning potential?

3. Does the dynamic procedure yield results that are more useful for setting up an intervention plan, compared to the standard version?

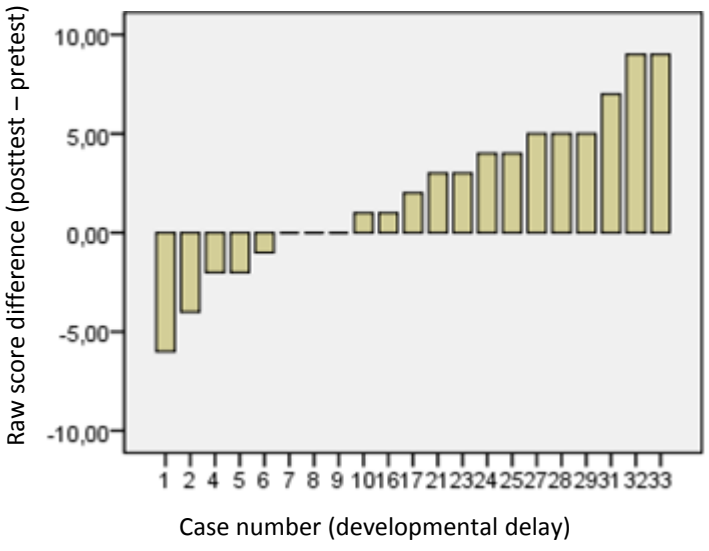
Method

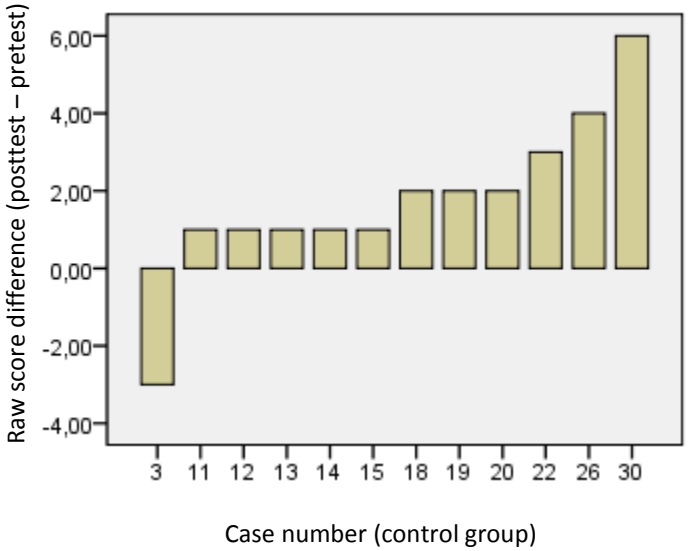
- Children in The Netherlands:
  - developmental age ≤ 42 months
  - calendar age ≤ 10 years
  - with developmental delay (referred by > 20 organizations for children with special needs in The Netherlands): n = 21
  - without developmental delay (control group): n = 12

- Interviews with educational psychologists: n = 8

Preliminary results

Test results: learning potential





Average raw score difference, paired t-test:

Developmental delay: m = 1.75, sd = 2.14, p = 0.016

Control group: m = 2.05, sd = 0.86, p = 0.028

Difference between the two groups: not significant (independent t-test, p = 0.78)

Test results: correct response after training

	Developmental delay		Control group	
Step	Average percentage	SD	Average percentage	SD
Repeat procedure	16.08 %	13.81	11.88 %	9.42
Verbal explanation	17.87 %	20.21	22.60 %	19.85
Demonstration	11.26 %	16.08	7.64 %	8.82
Joined execution	19.12 %	22.62	11.17 %	10.93
No correct response	35.68 %	26.54	46.72 %	23.38

Test results: opinion of experts

› Expert interviews with 8 educational psychologists

› Observation is most important part of the assessment results (8/8).

› Information about learning potential will enhance setting up and working towards goals (6/8).

›Information about response to training will help to adjust support and advice to the needs of the child (8/8).

Conclusion

1. Do children differ in their learning potential and amount of help needed?

   Yes

2. Is their a difference between children with and without developmental problems in learning potential?

   No

3. Does the dynamic procedure yield results that are more useful for setting up an intervention plan, compared to the standard version?

   Yes

Planned research

- What is the best measure of learning potential?
  - Difference between pretest and posttest raw scores
  - Difference between pretest and posttest raw scores on trained items
- Which measure can best predict future development?
  - Learning potential score
  - Posttest score
  - Amount of help needed
  - Combination

- n = 85, children with developmental delay
- External measure: development in one year
- Control for learning effect (test-retest)

References & Acknowledgments

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